APPENDIX

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Pages 2 and 3 of Applicants' parent application, Ser. No. 09/909,066

Page 340 of Websters Seventh New Dictionary.

It is a further objective of this invention to provide permanently roughened or textured surfaces to parts molded from polyolefins, particularly from polyethylene.

It is an additional objective of this invention to provide a coating composition which is useful in the method for applying granular or particulate material to the surface of polyolefins, particularly of polyethylene.

Other and related objectives will be apparent from the following description of the invention.

BRIEF DESCRIPTION OF THE INVENTION

This invention is a method to impart a permanent, roughened or textured surface to parts molded from polyolefins, particularly from polyethylene. The method comprises coating the selected surface of the part with a coating mixture of a tackifier resin and polyolefin particles in a liquid carrier and incorporating a granular or particulate matter in the coating, either by application to the coating or by admixing the granular or particulate matter into the coating mixture. The invention also includes the composition of the coating mixture. The coated surface of the polyethylene part is heated to the melt temperature of the polyolefin for a short time, sufficient to gel the polyolefin particles of the coating into the surface of the part, but insufficient to cause any thermal distortion of the part. The heating permanently incorporates the coating into the surface of the part, with the granular solids bonded to the surface to impart a roughened or textured surface.

DESCRIPTION OF PREFERRED EMBODIMENTS

The invention is applicable to the treatment of surfaces of polyolefins such as polymers and copolymers of ethylene, propylene, butene, isobutene, with minor amounts of other comonomers such as vinyl acetate, vinyl chloride, etc. Polyethylene is the most common and advantageously treated polyolefin and is preferred, however, the surfaces of other

polyolefins can be likewise treated.

The treatment of the invention is applicable to provide a roughened or textured surface to polyolefins in any form or shape, including films and sheets and molded objects such as containers, e.g., boxes, tanks, and outdoor signs, which are commonly rotationally molded from polyethylene.

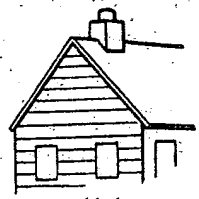
The method employs a coating adhesive mixture which is applied to the polyolefin surface as a thin coating approximately several mils or less, preferably one mil, in thickness. The coating can be applied by any conventional method such as spraying, brushing, rolling, etc. Spraying is preferred for ease of application.

The active ingredients in the coating mixture are powders of a polyolefin, preferable polyethylene and a tackifier. The polyethylene powder and tackifier are present in relative proportions of 15-30 weight parts tackifier and 85-70 weight parts polyethylene powder per 100 weight parts. These ingredients are dispersed in a suitable liquid carrier to permit application to the polyolefin surface. The liquid carrier can be water or a hydrocarbon solvent such as hexane or toluene.

The tackifier should be compatible with the polyolefin and preferably should be white to neutral in color to avoid staining the polyolefin surface. It should also have a softening temperature less than the melting temperature of the polyolefin, which for polyethylene should be less than 250 degrees F. Useful tackifiers include polyacrylic acid polyacrylates, polyurethanes, poly(vinyl)acetate and copolymers and mixtures thereof. Particularly preferred tackifiers are hydrocarbon resins such as aliphatic or cycloaliphatic petroleum resins from five carbon monomers containing minor amounts of aromatics, synthetic terpene resins, chlorinated polyolefins and hydrogenated rosin and rosin esters. The tackifier should be of light color to avoid

fus·ibil·i·ty \ˌfyü-zə-ˈbil-ət-ē\ *n* : the quality, state, or degree of being fusible
fus·ible \ˈfyü-zə-bəl\ *adj* : capable of being fused and esp. liquefied by heat
fusible metal *n* : an alloy having a melting point usu. below 300°F and used esp. for boiler safety plugs and automatic-sprinkler fuses
fu·si·form \ˈfyü-zə-ˌfȯrm\ *adj* : tapering toward each end
¹fu·sil \ˈfyü-zəl\ *or* **fu·sile** \ˈfyü-zəl, -zīl\ *adj* [ME, fr. L *fusilis*, fr. *fusus*, pp.] **1** *archaic* **a** : made by melting and pouring into forms : CAST **b** : liquefied by heat **2** *archaic* : FUSIBLE
²fusil *n* [F, lit., steel for striking fire, fr. OF *foisil*, fr. (assumed) VL *focilis*, fr. LL *focus* fire — more at FUEL] : a light flintlock musket
fu·sil·ier *or* **fu·sil·eer** \ˌfyü-zə-ˈli(ə)r\ *n* [F *fusilier*, fr. *fusil*] **1** : a soldier armed with a fusil **2** : a member of a British regiment formerly armed with fusils
¹fu·sil·lade \ˈfyü-sə-ˌlād, -ˌlăd, ˌfyü-sə-ˈ, -zə-\ *n* [F, fr. *fusiller* to shoot, fr. *fusil*] **1** : a number of shots fired simultaneously or in rapid succession **2** : a spirited outburst esp. of criticism
²fusillade *vt* : to attack or shoot down by a fusillade
fu·sion \ˈfyü-zhən\ *n, often attrib* [L *fusion-*, *fusio*, fr. *fusus*, pp.] **1 a** : the act or process of liquefying or rendering plastic by heat **b** : the liquid or plastic state induced by heat **2** : a union by melting: as **a** : a merging of diverse elements into a unified whole **b** : a political partnership : COALITION **c** : the union of atomic nuclei to form heavier nuclei resulting in the release of enormous quantities of energy when certain light elements unite
fusion bomb *n* : a bomb in which nuclei of a light chemical element unite to form nuclei of heavier elements with a release of energy; *esp* : HYDROGEN BOMB
fu·sion·ist \ˈfyüzh-(ə-)nəst\ *n* : one who promotes or takes part in a coalition esp. of political parties
¹fuss \ˈfəs\ *n* [perh. of imit. origin] **1 a** : needless bustle or excitement : COMMOTION **b** : effusive praise **2 a** : a state of agitation esp. over a trivial matter **b** : OBJECTION, PROTEST **c** : an angry dispute **syn** see STIR
²fuss *vi* **1 a** : to create or be in a state of restless activity; *specif* : to shower flattering attentions **b** : to pay undue attention to small details **2 a** : to become upset : WORRY **b** : COMPLAIN, ARGUE ~ *vt* : AGITATE, UPSET — **fuss·er** *n*
fuss-bud·get \ˈfəs-ˌbəj-ət\ *n* : one who fusses about trifles
fuss·i·ly \ˈfəs-ə-lē\ *adv* : in a fussy manner
fuss·i·ness \ˈfəs-ē-nəs\ *n* : the quality or state of being fussy
fussy \ˈfəs-ē\ *adj* **1** : easily upset : IRRITABLE **2 a** : requiring or giving close attention to details **b** : revealing a concern for niceties : FASTIDIOUS
fus·tian \ˈfəs-chən\ *n* [ME, fr. OF *fustaine*, fr. ML *fustaneum*, prob. fr. *fustis* tree trunk, fr. L, club] **1 a** : a strong cotton and linen fabric **b** : a class of cotton fabrics usu. having a pile face and twill weave **2** : pretentious writing or speech **syn** see BOMBAST — **fustian** *adj*
fus·tic \ˈfəs-tik\ *n* [ME *fustik*, fr. MF *fustoc*, fr. Ar *fustuq*, fr. Gk *pistakē* pistachio tree — more at PISTACHIO] **1** : the wood of a tropical American tree (*Chlorophora tinctoria*) of the mulberry family that yields a yellow dye; *also* : any of several similar dyewoods **2** : a tree yielding fustic
fus·ti·gate \ˈfəs-tə-ˌgāt\ *vt* [LL *fustigatus*, pp. of *fustigare*, fr. L *fustis* + *-igare* (akin to *agere* to drive) — more at AGENT] **1** : CUDGEL **2** : to criticize severely — **fus·ti·ga·tion** \ˌfəs-tə-ˈgā-shən\ *n*
fus·ti·ly \ˈfəs-tə-lē\ *adv* : in a fusty manner
fus·ti·ness \-tē-nəs\ *n* : the quality or state of being fusty
fus·ty \ˈfəs-tē\ *adj* [ME, fr. *fust* wine cask, fr. MF, club, cask, fr. L *fustis*] **1** *Brit* : impaired by age or dampness : MOLDY **2** : saturated with dust and stale odors : MUSTY **3** : old-fashioned or rigidly conservative **syn** see MALODOROUS
fu·thark \ˈfü-ˌthärk\ *also* **fu·thorc** *or* **fu·thork** \-ˌthȯ(ə)rk\ *n* [fr. the first six letters, *f*, *u*, *þ* (*th*), *o* (or *a*), *r*, *c* (-*k*)] : the runic alphabet
fu·tile \ˈfyüt-ᵊl, -ˌtīl\ *adj* [MF or L; MF, fr. L *futilis* that pours out easily, useless, fr. *fut-* (akin to *fundere* to pour) — more at FOUND] **1** : serving no useful purpose **2** : occupied with trifles : FRIVOLOUS — **fu·tile·ly** \-ᵊl-(ˌ)ē, -ˌtīl-lē\ *adv* — **fu·tile·ness** *n* — **fu·til·i·ty** \fyü-ˈtil-ət-ē\ *n*
syn VAIN, FRUITLESS: FUTILE may connote completeness of failure or unwisdom of undertaking; VAIN usu. implies simple failure to achieve a desired result; FRUITLESS comes close to VAIN but often suggests long and arduous effort or severe disappointment
fu·til·i·tar·i·an \fyü-ˌtil-ə-ˈter-ē-ən, ˌfyü-\ *n* [blend of *futile* and *utilitarian*] : one who believes that human striving is futile — **futilitarian** *adj* — **fu·til·i·tar·i·an·ism** \-ē-ə-ˌniz-əm\ *n*
fut·tock \ˈfət-ək\ *n* [prob. alter. of *foothook* (futtock)] : one of the curved timbers scarfed together to form the lower part of the compound rib of a ship
futtock shroud *n* : a short iron rod connecting the topmast rigging with the lower mast
¹fu·ture \ˈfyü-chər\ *adj* [ME, fr. OF & L; OF *futur*, fr. L *futurus* about to be — more at BE] **1** : that is to be; *specif* : existing after death **2** : of, relating to, or constituting a verb tense formed in English with *will* and *shall* and expressive of time yet to come
²future *n* **1 a** : time that is to come **b** : what is going to happen **2** : an expectation of advancement or progressive development **3** : a stock or commodity bought and sold for delivery at a future time — usu. used in *pl.* **4 a** : the future tense of a language **b** : a verb form in the future tense
fu·ture·less \-ləs\ *adj* : having no prospect of future success
future perfect *adj* : of, relating to, or constituting a verb tense that is traditionally formed in English with *will have* and *shall have* and that expresses completion of an action by a specified time that is yet to come — **future perfect** *n*
fu·tur·ism \ˈfyü-chə-ˌriz-əm\ *n* : a movement in art, music, and literature begun in Italy about 1910 and marked esp. by an effort to give formal expression to the dynamic energy and movement of mechanical processes — **fu·tur·ist** \ˈfyüch-(ə-)rəst\ *n*
fu·tur·is·tic \ˌfyü-chə-ˈris-tik\ *adj* : of or relating to the future or to futurism — **fu·tur·is·ti·cal·ly** \-ti-k(ə-)lē\ *adv*
fu·tu·ri·ty \fyü-ˈt(y)ůr-ət-ē, -ˈchůr-\ *n* **1** : FUTURE **2** : the quality or state of being future **3** *pl* : future events or prospects
futurity race *n* **1** : a horse race usu. for two-year-olds in which the competitors are nominated at birth or before **2** : a race or competition for which entries are made well in advance of the event
fuze, fu·zee *var of* FUSE, FUSEE
¹fuzz \ˈfəz\ *n* [prob. back-formation fr. *fuzzy*] : fine light particles or fibers (as of down or fluff)
²fuzz *vi* : to fly off in or become covered with fluffy particles ~ *vt* **1** : to make fuzzy **2** : to envelop in a haze : BLUR
fuzz·i·ly \ˈfəz-ə-lē\ *adv* : in a fuzzy manner
fuzz·i·ness \ˈfəz-ē-nəs\ *n* : the quality or state of being fuzzy
fuzzy \ˈfəz-ē\ *adj* [perh. fr. LG *fussig* loose, spongy; akin to OHG *fūl* rotten — more at FOUL] **1** : covered with or resembling fuzz **2** : not clear : INDISTINCT
-fy \ˌfī\ *vb suffix* [ME *-fien*, fr. OF *-fier*, fr. L *-ficare*, fr. *-ficus* -fic] **1** : make : form into ⟨dandi*fy*⟩ **2** : invest with the attributes of : make similar to ⟨citi*fy*⟩
fyce \ˈfīs\ *var of* FEIST
fyke \ˈfīk\ *n* [D *fuik*] : a long bag net kept open by hoops
fyl·fot \ˈfil-ˌfät\ *n* [MB, device used to fill the lower part of a painted glass window, fr. *fillen* to fill + *fot* foot] : SWASTIKA

g \ˈjē\ *n, often cap, often attrib* **1 a** : the seventh letter of the English alphabet **b** : a graphic representation of this letter **c** : a speech counterpart of orthographic *g* **2** : the tone G **3** : a graphic device for reproducing the letter *g* **4** : one designated *g* esp. as the seventh in order or class **5** [gravity] : a unit of force equal to the force exerted by gravity on a body at rest and used to indicate the force to which a body is subjected when accelerated **6** [grand] *slang* : a sum of $1000 **7** : something shaped like the capital letter G
¹gab \ˈgab\ *vi* **gabbed**; **gab·bing** [prob. short for *gabble*] : to talk in a rapid or thoughtless manner : CHATTER
²gab *n* : TALK; *esp* : idle talk
gab·ar·dine \ˈgab-ər-ˌdēn\ *n* [MF *gaverdine*] **1** : GABERDINE **2 a** : a firm hard-finish durable fabric twilled with diagonal ribs on the right side and made of various fibers **b** : a garment of gabardine
gab·ber \ˈgab-ər\ *n* : one that talks much, habitually, and usu. idly
gab·ble \ˈgab-əl\ *vb* **gab·bling** \-(ə-)liŋ\ [prob. of imit. origin] *vi* **1** : to talk fast or foolishly : JABBER **2** : to utter inarticulate or animal sounds ~ *vt* : to say with incoherent rapidity : BABBLE — **gabble** *n* — **gab·bler** \-(ə-)lər\ *n*
gab·bro \ˈgab-(ˌ)rō\ *n* [It] : a granular igneous rock composed essentially of calcic plagioclase, a ferromagnesian mineral, and accessory minerals — **gab·bro·ic** \ga-ˈbrō-ik\ *adj*
gab·broid \ˈgab-ˌrȯid\ *adj* : resembling gabbro
gab·by \ˈgab-ē\ *adj* : TALKATIVE, GARRULOUS
ga·belle \gə-ˈbel\ *n* [ME, fr. MF, fr. OIt *gabella* tax, fr. Ar *qabālah*] : a tax on salt levied in France prior to 1790
gab·er·dine \ˈgab-ər-ˌdēn\ *n* [MF *gaverdine*] **1 a** : a coarse long coat or smock worn chiefly by Jews in medieval times **b** : an English laborer's smock **c** : GARMENT **2** : GABARDINE
gab·er·lun·zie \ˌgab-ər-ˈlən-zē\ *n* [origin unknown] **1** *Scot* : BEGGAR, MENDICANT **2** *Scot* : VAGRANT
gab·fest \ˈgab-ˌfest\ *n* **1** : an informal gathering for general talk **2** : an extended conversation
ga·bi·on \ˈgā-bē-ən\ *n* [MF, fr. OIt *gabbione*, lit., large cage, aug. of *gabbia* cage, fr. L *cavea* — more at CAGE] : a hollow wickerwork or iron cylinder filled with earth and used in building fieldworks or in mining
ga·ble \ˈgā-bəl\ *n* [ME, fr. MF, of Gmc origin; akin to ON *gafl* gable — more at CEPHALIC] **1 a** : the vertical triangular end of a building from cornice or eaves to ridge **b** : the similar end of a gambrel roof **c** : the end wall of a building **2** : a triangular furniture or building part


gable 1a

ga·bled \-bəld\ *adj* : built with a gable
gable roof *n* : a double-sloping roof that forms a gable at each end
gab·oon \gə-ˈbün\ *n* [alter. of ¹*gob* + *-oon* (as in *spittoon*)] *dial* : CUSPIDOR, SPITTOON
Ga·bri·el \ˈgā-brē-əl\ *n* [Heb *Gabhrī'ēl*] : one of the archangels
ga·by \ˈgā-bē\ *n* [perh. of Scand origin; akin to ON *gapa* to gape — more at GAPE] *dial chiefly Eng* : SIMPLETON
¹gad \ˈgad\ *n* [ME, spike, fr. ON *gaddr*; akin to OE *geard* rod — more at YARD] **1** : a chisel or pointed iron or steel bar for loosening ore or rock **2** *dial* : ROD, STICK
²gad *vi* **gad·ded**; **gad·ding** [ME *gadden*] : to be on the go to little purpose — **gad·der** *n*
³gad *interj* [euphemism for *God*] — used as a mild oath
Gad \ˈgad\ *n* [Heb *Gādh*] : a son of Jacob and ancestor of one of the tribes of Israel — **Gad·ite** \-ˌīt\ *n*
gad·about \ˈgad-ə-ˌbaůt\ *n* : a person who flits about in social activity — **gadabout** *adj*
gad·a·rene \ˈgad-ə-ˌrēn\ *adj, often cap* [fr. the demon-possessed *Gadarene* swine (Mt 8:28) that rushed into the sea] : HEADLONG, PRECIPITATE
gad·fly \ˈgad-ˌflī\ *n* **1** : any of various flies (as a horsefly, botfly, or warble fly) that bite or annoy livestock **2** : a person who annoys or stirs up from lethargy